ing countries was made in the first instance for five years only, in case the publication of the catalogue should fail financially or in other ways. It was also decided to spend £100 in making the catalogue known, and to take steps to invite the cooperation of other countries not yet represented on the council, *e. g.*, Spain, the Balkan States, South American Republics, etc.

The proposal to publish additional volumes upon, *a*, medicine and surgery; *b*, agriculture, horticulture and forestry; *c*, technology (various branches) was discussed, and it was decided that the executive committee should take the suggestion into fuller consideration and bring it under the notice of the international convention in July, 1905. It was also resolved that all alterations in the schedules should be collected and edited by the central bureau prior to submission to the regional bureaus for their opinions, and that the schemes should be edited by a special committee before being submitted to the international convention.

A. LIVERSIDGE.

INAUGURATION OF THE MAGNETIC SURVEY OF THE NORTH PACIFIC OCEAN.

As announced in a previous issue of SCIENCE, the brig *Galilee* of San Francisco, a wooden sailing vessel, built in 1891, of length 132.5 feet, breadth 33.5 feet, depth 12.7 feet, displacement about 600 tons, has been chartered by the department of terrestrial magnetism of the Carnegie Institution of Washington for the purpose of making a magnetic survey of the North Pacific Ocean. After the various necessary alterations, *e. g.*, substitution of the steel rigging by hemp rigging, etc., were made, the vessel entered upon her duties early in August. Magnetic observations were made at various places on the shores around San Francisco Bay and the most suitable place for 'swinging ship' by their aid determined. The ship was 'swung' with the aid of a tug on August 2, 3 and 4 in San Francisco Bay between Goat Island and Berkeley, California, and the various deviation coefficients were determined.

On August 5, the *Galilee* sailed from San Francisco, secured magnetic observations daily to a greater or less extent according to conditions of the weather and sea, 'swung' twice under sail, and arrived at San Diego, August 12. This first short cruise was an experimental one, various instruments and methods having been subjected to trials under the direction of the writer, who accompanied the expedition as far as San Diego. The deflection apparatus devised by the writer for determining horizontal intensity has proved successful. In a future paper the methods, instruments and results will be more fully described.

After further alterations had been made at San Diego, and the deviation coefficients having been redetermined, the *Galilee* again set sail, on September 1, this time for the Hawaiian and Midway Islands and is expected to return to San Francisco about December 1. After these two experimental voyages, she is to sail from San Francisco early in 1906 on a more lengthy cruise—one embracing the entire circuit of the North Pacific Ocean.

The scientific personnel at present consists of Mr. J. F. Pratt, commander; Dr. J. Hobart Egbert, surgeon and magnetic observer; Mr. J. P. Ault, magnetic observer, and Mr. P. C. Whitney, magnetic observer and watch officer. The sailing master is Captain J. T. Hayes, who has made some record sailing trips in the *Galilee*—one a voyage of 3,000 miles from the South Pacific Islands to San Francisco in fifteen days and having made as much as 308 miles in one day.

L. A. BAUER.
DEPT. TERRESTRIAL MAGNETISM,
CARNEGIE INSTITUTION,
WASHINGTON, D. C.,
September 11, 1905.

EXPERIMENTAL STUDIES IN YELLOW FEVER AND MALARIA AT VERA CRUZ.

THE U. S. Public Health and Marine Hospital Service has published a bulletin on the experimental work done by assistant surgeons M. J. Rosenau, Herman B. Parker, Edward Francis and George E. Beyer, the conclusions of which are as follows: The cause of yellow fever is not known. The *Myxococcidium*

stegomyiæ is not an animal parasite. Yeast cells sometimes stimulate the coccidia in form and staining reaction.

The infection of yellow fever is in the blood serum early in the disease. No abnormal elements that bear a causal relation to the disease can be detected in the serum or in the corpuscles with the best lenses at our command.

The infective principle of yellow fever may pass the pores of a Pasteur-Chamberland B filter. Particles of carbon visible with Zeiss lenses pass through both the Berkefeld and Pasteur-Chamberland B filters. Because the virus of an infectious disease passes a Berkefeld or Pasteur-Chamberland B filter it does not necessarily follow that the parasite which passed the filter is 'ultramicroscopic,' or that it may not have elsewhere another phase in its life cycle of large size. The filtration of viruses may succeed or fail, depending upon the character of the filter, the diluting fluid, the pressure, time, temperature, motility of the particles and other factors.

The period of incubation of yellow fever caused by the bites of infected mosquitoes is usually three days, sometimes five days, and in one authentic instance six days and two hours; but when the disease is transmitted by such artificial means as the inoculation of blood or blood serum the period of incubation shows less regularity.

Yellow fever may be conveyed to a non-immune by the bite of an infected *Stegomyia fasciata;* but the bites of *Stegomyia* which have previously (over twelve days) bitten cases of yellow fever do not always convey the disease.

Fomites play no part in the transmission of the disease.

The tertian and estivo-autumnal malarial parasites will not pass the pores of a Berkefeld filter.

There is a poison in the blood during the chill of tertian infection which, when injected into another man, caused chill, fever and sweating. This poison, while present in a case of tertian during the rise of temperature, could not be demonstrated in the blood of a case of estivo-autumnal fever during the decline of the paroxysm. While this poison reproduced the symptoms of the disease, still the data are too limited to consider it the malarial toxin.

Stegomyia fasciata is a domestic insect. It is most active during the day, but will bite at night under artificial light. The female lays eggs at intervals; the maximum number of eggs laid by one insect observed was 101. The mosquito does not always die directly after ovipositing.

Stegomyia fasciata may bite and draw blood from cadavers, although the danger from spreading the infection from this source is remote.

Male and female *Stegomyia fasciata* may pass a screen containing 16 strands, or 15 meshes to the inch, but not one of 20 strands, or 19 meshes to the inch.

Tobacco smoke produced by burning two pounds per 1,000 cubic feet with an exposure of two hours is sufficient to kill *Stegomyia fasciata.* This method is objectionable on account of the yellow stains and disagreeable odor. Pyrethrum burned in the proportion of one pound per 1,000 cubic feet with an exposure of two hours will stupefy *Stegomyia fasciata;* it requires two pounds to kill them outright.

From the limited number of experiments made and from previous experiments it is thought that sulphur dioxid is the best of the gaseous insecticides for this purpose. Formaldehyde gas is not an insecticide, and therefore not applicable.

SCIENTIFIC NOTES AND NEWS.

M. Élie Metchnikoff, of the Institut Pasteur, has been elected a foreign member of the Brussels Academy of Sciences.

. Dr. Karl Schwarzschild, professor of astronomy at Göttingen, has been elected a member of the Academy of Sciences of that city.

Brig. General A. W. Greely, chief signal officer of the army, has completed a thorough inspection of the Alaskan telegraph system.

Dr. Otto Klotz, Dominion astronomer, has just completed observations at Harvard Observatory for the longitude connections with the new observatory at Ottawa.